



UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/164,682 10/01/98 OTSUKA

K 10746-1

KENYON & KEYON
ONE BROADWAY
NEW YORK NY 10004

LM31/0607

EXAMINER

NAKHJAVAN, S

ART UNIT

PAPER NUMBER

2721

DATE MAILED:

06/07/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/164,682	Applicant(s) OTSUKA ET AL.	
	Examiner Shervin Nakhjavan	Art Unit 2721	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12, 27-31, and 46-50 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 13, 18-22, 25, 32, 37-41, 44, 51, and 56-57 is/are rejected.
- 7) ☒ Claim(s) 4-5, 7, 14-17, 23-24, 26, 33-36, 42-43, 45 and 52-55 is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 6, 13, 18-22, 25, 32, 37-41, 44, 51, and 56-57 are rejected under 35 U.S.C. 102(b) as being anticipated by Nelson et al. (IDS, Page 2, Item AR).

Regarding claims 1-3, and 13, Nelson teaches limitation of 1-3, a method for extracting image features from an image sequence in which frames indicating images are time-sequentially arranged with respect to time, said method comprising the steps of: (a) inputting the image sequence (Page 81, Rt column, 3rd paragraph through Page 82, Lt Column, Line 7; (b) acquiring a motion trajectory of an image contour of a target included within a region defined by an arbitrary spatial range and time range within the image sequence input by said step (a), as three-dimensional volume data drawn within a spatiotemporal space in which each of the frames is time-sequentially stacked (Page 83, Lt Column, Line 3 through Rt Column, Line 24) ; and (c) measuring temporal features and spatial features of the image from the motion trajectory which is acquired as the three-dimensional volume data by said step (b) (Page 83, Lt Column, Line 21 through Rt Column, Line 2)

further limitations of claim 2, c) acquiring a Plane histogram of one of tangent

Art Unit: 2721

planes tangent to the motion trajectory and partial planes which may be included in the motion trajectory (Page 84, Lt Column, Lines 3-14); and (d) measuring temporal features and spatial features of the image from the plane histogram which is acquired by said step (c) (Page 84, Lt Column, Lines 9-14);

further limitation of claim 3, (d) estimating a velocity component of the target which moves within the region from the plane histogram acquired by said step (c) (Page 83, Rt Column, 3rd Paragraph, A useful statistic); (e) extracting a distribution of the tangent planes corresponding to the image contour of the target which moves at the velocity component estimated by said step (d), from the plane histogram acquired by said step (c) (Page 83, Rt Column, 3rd paragraph, Lines 5-7); and (f) acquiring spatial features of the image from the distribution of the tangent planes extracted by said step (e) (Page 83, Rt Column, Lines 19-24)

limitation of claim 6 said step (e) extracts a distribution of tangent planes along tangent line directions to the image contour of the target, and said step (f) calculates feature values related to a directionality of the image contour of the target from the distribution of the tangent planes extracted by said step (e) (Page 83, Rt Column, 2nd paragraph);

further limitation of claim 13, (d) extracting, as an image, a distribution of the motion trajectory existing on the tangent planes detected by said step (c) (Page 84, Lt Column, Lines 3-7); and (e) tracking a motion trajectory on the image extracted by said step (d) and detecting an occlusion of the target (Page 84, Lt Column, Lines 9-14, where tracking is done by normal flow direction method and intensity texture is

Art Unit: 2721

occlusion of the target);

limitation of claim 18, the method as claimed wherein the three-dimensional volume data is obtained by forming difference images among the frames in time sequence, and stacking the formed difference images (Page 81, Lt Column, 4th paragraph, Lines 9-12);

limitation of claim 19, the plane histogram is obtained as votes accumulated in a plane parameter space (Page 84, Lt Column, lines 3-14, where the texture identity is voted by the method) the identity of the texture obtained by use of a three-dimensional Hough transform (Page 88, Lt column, 2nd paragraph, Lines 4-7);

limitation of claims 20-22, 25, 32, 37-41, 44, 51, and 56-57 Although the equipment and operation programming of the discussed claims above are not mentioned in the reference however, the implementation of anyone of methods discussed above would be neither possible or practical without proper equipment and programming. Therefore claims 20-22, 25, 32, 37-41, 44, 51, and 56-57 are also rejected because they are inherent in the method claims above.

Allowable Subject Matter

3. Claims 4-5, 7, 14-17, 23-24, 26, 33-36, 42-43, 45, 52-55 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 8-12, 27-31, and 46-50 are allowed.

Art Unit: 2721

Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,777,690 to Takeda et al. is cited for Device and method for detection of moving obstacles.

U.S. Patent 5,600,731 to Sezan et al. is cited for method for temporally adaptive filtering of frames of a noisy image sequence using motion estimation.

U.S. Patent 5,109,425 to Lawton is cited for method and apparatus for predicting the direction of movement in machine vision.

Contact information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shervin Nakhjavan whose telephone number is (703) 306-5916. The examiner can normally be reached on Monday through Friday from 8:00 am to 5:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, DC 20231

Or faxed to:

(703) 308-9051 OR (703) 308-9052 (for **formal** communications, please mark "EXPEDITED PROCEDURE")

or:

(703) 306-5406 (for **informal** or **draft** communications; please label "PROPOSED" or "DRAFT").

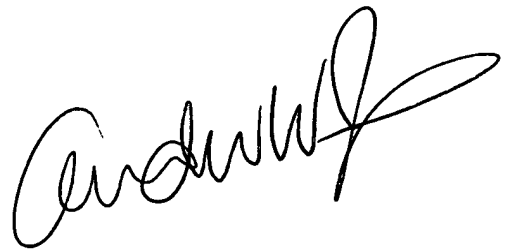
Hand delivered responses should be brought to Crystal Park 2, 2121 Crystal drive, Arlington, VA, sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist, whose telephone number (703) 305-3900.

Application/Control Number: 09/164,682
Art Unit: 2721

Page 6

Shervin Nakhjavan *SN*
Patent Examiner
Group Art Unit 2721
June 2, 2000.

A handwritten signature in black ink, appearing to read "Andrew W. Johns". The signature is fluid and cursive, with a large loop at the end.

**ANDREW W. JOHNS
PRIMARY EXAMINER**